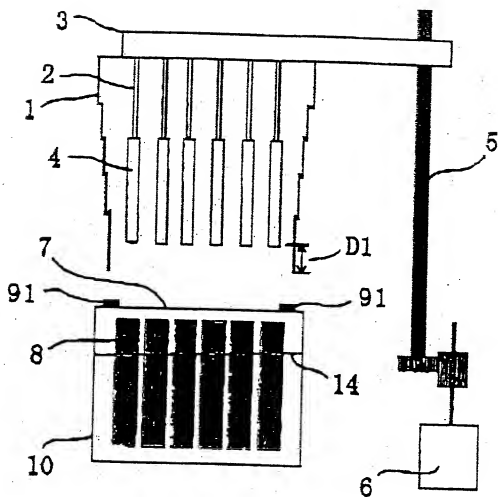


FIG. 1A



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FIG. 1B

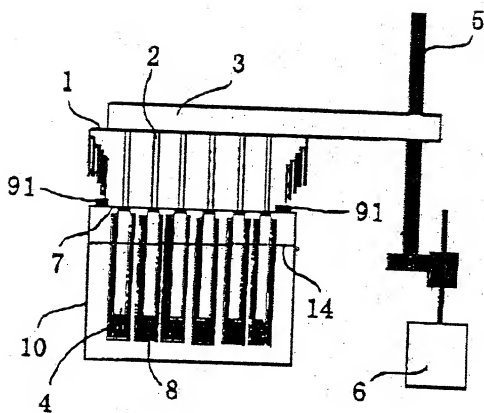


FIG. 1C

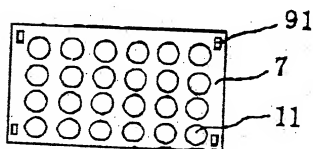
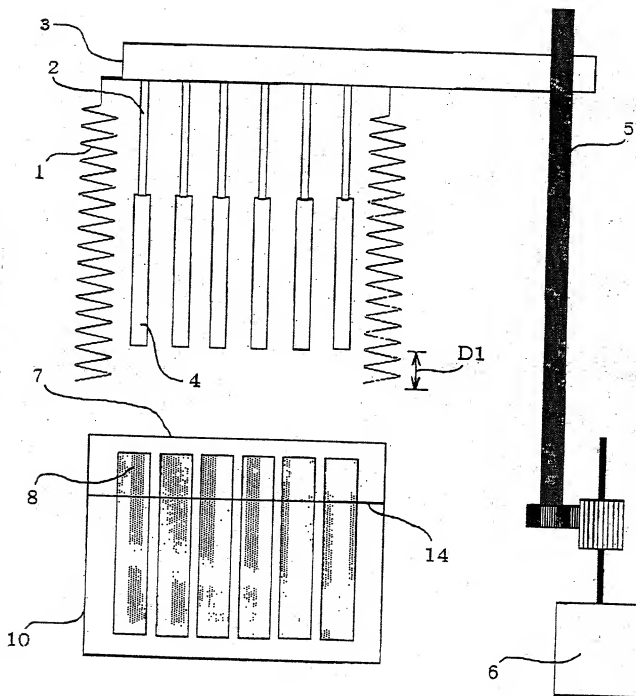


FIG. 2



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FIG. 3A

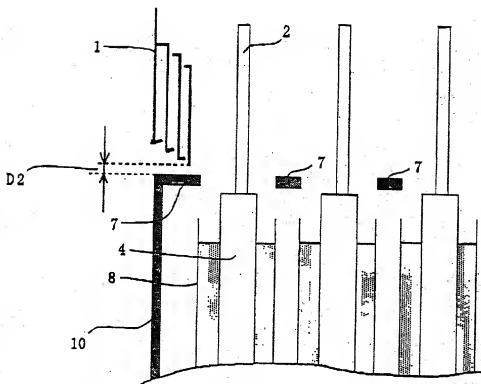


FIG. 3B

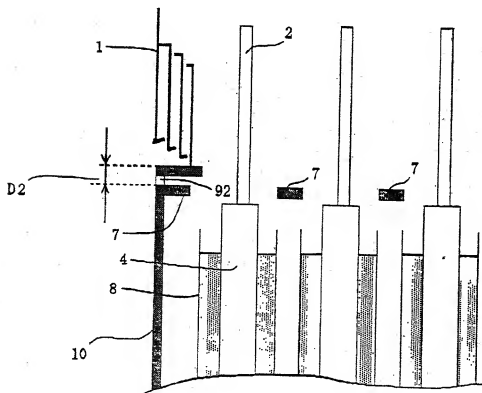


FIG. 4

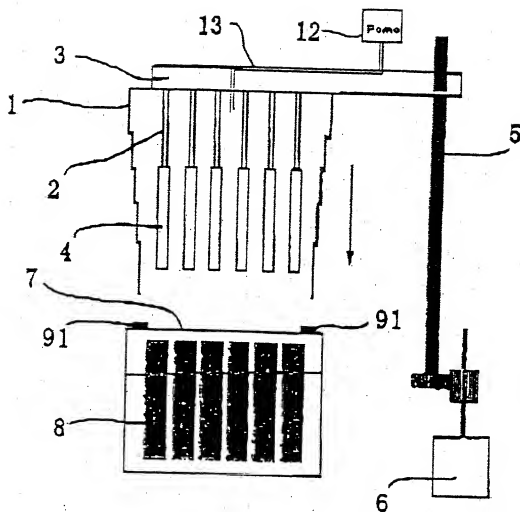


FIG. 5

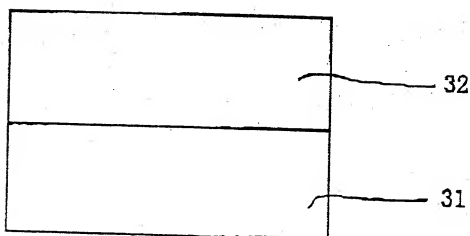


FIG. 6

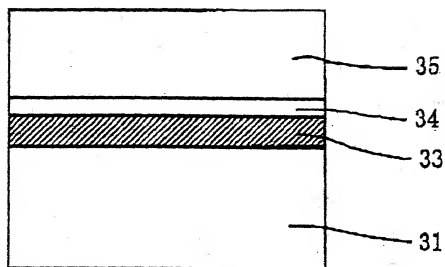


FIG. 7

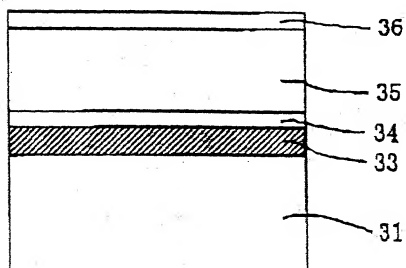


FIG. 8

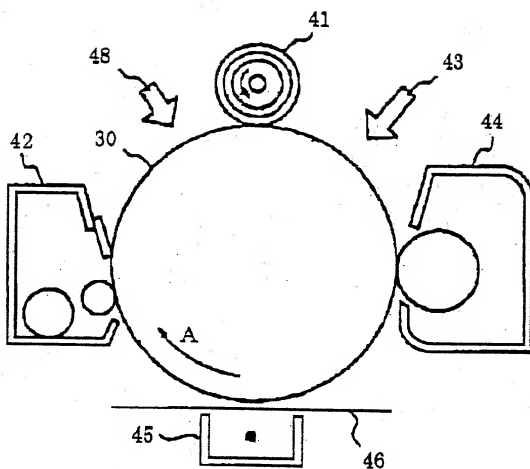


FIG. 9

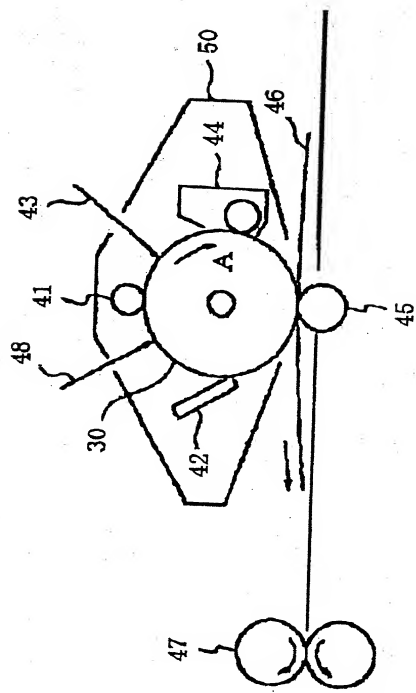


FIG. 10

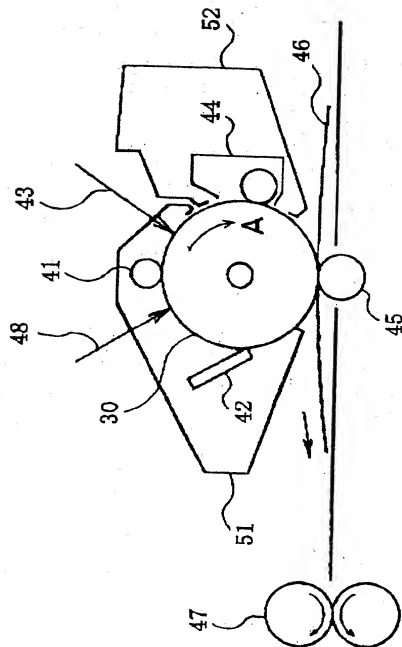


FIG. 11

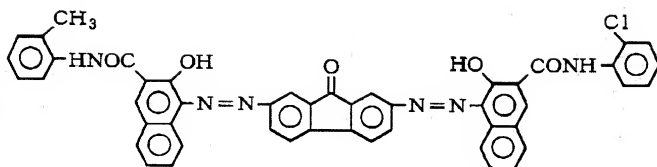


FIG. 12

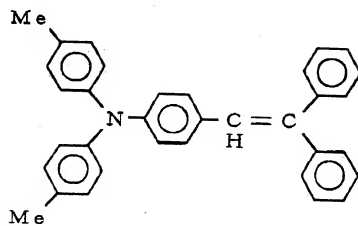


FIG. 13

	D1/mm	D2/mm
EXAMPLE 1-1	0	0
EXAMPLE 1-2	20	0
EXAMPLE 1-3	50	0
EXAMPLE 1-4	100	0
EXAMPLE 1-5	20	5
EXAMPLE 1-6	20	25
EXAMPLE 1-7	20	50
EXAMPLE 1-8	20	60
COMPARATIVE EXAMPLE 1-1	-10	0
COMPARATIVE EXAMPLE 1-2	-30	0

FIG. 14

	DIFFERENCE R (μm) (BETWEEN MAX. & MIN.)			THICKNESS DISTRIBUTION	DEGREE OF SLOPE ($50\text{mm} \sim$ 290mm) FILM THICKNESS	IMAGE ESTIMATION	
	DISTANCE FROM TOP					TRIMMED IMAGE	HALFTONE IMAGE
	50mm	170mm	290mm				
EXAMPLE 1-1	0.15	0.45	1.23	SLOPE IN AXIAL DIRECTION	$3.2 \mu\text{m}$	○	○
EXAMPLE 1-2	0.11	0.33	0.53	SLOPE IN AXIAL DIRECTION	$3.1 \mu\text{m}$	○	○
EXAMPLE 1-3	0.09	0.33	0.22	SLOPE IN AXIAL DIRECTION	$3.5 \mu\text{m}$	○	○
EXAMPLE 1-4	0.08	0.15	0.28	SLOPE IN AXIAL DIRECTION	$3.4 \mu\text{m}$	○	○
EXAMPLE 1-5	0.09	0.12	0.23	NO SLOPE	$0.3 \mu\text{m}$	○	○
EXAMPLE 1-6	0.12	0.19	0.25	NO SLOPE	$0.2 \mu\text{m}$	○	○
EXAMPLE 1-7	0.43	0.33	0.28	NO SLOPE	$0.3 \mu\text{m}$	○	○
EXAMPLE 1-8	1.29	0.75	0.25	NO SLOPE	$0.3 \mu\text{m}$	○	○
COMPARATIVE EXAMPLE 1-1	0.13	0.73	2.3	SLOPE IN AXIAL DIRECTION	$8.2 \mu\text{m}$	SHEAR AT TOP	IRREGULAR DENSITY AT BOTTOM
COMPARATIVE EXAMPLE 1-2	0.22	1.58	3.1	SLOPE IN AXIAL DIRECTION	$9.1 \mu\text{m}$	SHEAR AT TOP	IRREGULAR DENSITY FROM CENTER TO BOTTOM

FIG. 15

	DIFFERENCE R (μm) BETWEEN MAX. & MIN.			THICKNESS DISTRIBUTION	DEGREES OF SLOPE (50mm ~ 290mm) FILM THICKNESS	IMAGE ESTIMATION	
	DISTANCE FROM TOP					TRIMMED IMAGE	HALFTONE IMAGE
	50mm	170mm	290mm				
EXAMPLE 2-1	0.35	0.55	2.16	SLOPE IN ANAL DIRECTION	5.2 μm	○	IRREGULAR DENSITY AT BOTTOM
EXAMPLE 2-2	0.44	0.57	1.62	SLOPE IN ANAL DIRECTION	4.8 μm	○	LIGHT IRREGULAR DENSITY AT BOTTOM
EXAMPLE 2-3	0.47	0.62	1.58	SLOPE IN ANAL DIRECTION	4.6 μm		SHEAR AT TOP
EXAMPLE 2-4	0.53	0.57	1.55	SLOPE IN ANAL DIRECTION	4.9 μm	○	LIGHT IRREGULAR DENSITY AT BOTTOM
EXAMPLE 2-5	0.44	0.58	1.73	NO SLOPE	2.2 μm	○	LIGHT IRREGULAR DENSITY AT BOTTOM
EXAMPLE 2-6	1.59	0.73	0.25	NO SLOPE	2.3 μm	○	LIGHT IRREGULAR DENSITY AT BOTTOM
EXAMPLE 2-7	1.73	0.33	0.28	NO SLOPE	1.9 μm	○	LIGHT IRREGULAR DENSITY AT BOTTOM
EXAMPLE 2-8	2.5	1.2	0.53	NO SLOPE	2.7 μm	○	HEAVY IRREGULAR DENSITY FROM TOP TO CENTER

FIG. 16

	DIFFERENCE R (nm) BETWEEN MAX & MIN.				THICKNESS DISTRIBUTION	DEGREE OF SLOPE (50nm ~ 290nm) FILM THICKNESS	IMAGE ESTIMATION	
	DISTANCE FROM TOP						TRIMMED IMAGE	HALFTONE IMAGE
	50nm	170nm	290nm	290nm				
EXAMPLE 3-1	0.13	0.23	1.23		SLOPE IN AXIAL DIRECTION	2.9 μ m	○	○
EXAMPLE 3-2	0.11	0.22	0.49		SLOPE IN AXIAL DIRECTION	3.1 μ m	○	○
EXAMPLE 3-3	0.11	0.17	0.22		SLOPE IN AXIAL DIRECTION	2.8 μ m	○	○
EXAMPLE 3-4	0.12	0.12	0.28		SLOPE IN AXIAL DIRECTION	2.9 μ m	○	○
EXAMPLE 3-5	0.09	0.16	0.3		NO SLOPE	0.9 μ m	○	○
EXAMPLE 3-6	0.1	0.22	0.29		NO SLOPE	0.7 μ m	○	○
EXAMPLE 3-7	0.38	0.35	0.3		NO SLOPE	0.6 μ m	○	○
EXAMPLE 3-8	0.43	0.37	0.25		NO SLOPE	0.7 μ m	○	○